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# **Impact of Intervention on the Psychological Well-Being of Injured Workers**

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Additional information is available at the end of the chapter

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## **Abstract**

This chapter examined the impact of an intervention program on the psychological well-being of injured workers. Data consisted of 4041 injured workers who were insured with Social Security Organization (SOCSO) and participated in the case management rehabilitation program from 2012 to 2015. Psychological well-being was measured using the Visual Analogue Scale (VAS) and Depression, Anxiety and Stress (DASS) consisting of seven and three components, respectively. The assessments were conducted before commencement and after completion of rehabilitation. Results showed significant improvement in all 10 components of VAS and DASS. Workers registered higher scores on skills, career goals, independence, self-esteem, confidence, health condition and pain tolerance in the post-intervention assessment while significant reduction was observed in the level of depression, anxiety and stress. This improvement suggested the importance of a structured disability management program in enhancing the quality of life and motivation for workers to return to work.

**Keywords:** intervention, case management, injured workers, psychology well-being, return to work (RTW)

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## **1. Introduction**

The trauma of work related injuries and occupational diseases as well as associated emotional stress due to physical impairment and social-psychological conditions may affect the workers' behavior and ability to perform job functions in the workplace. Some injuries result in temporary disablement while other more serious injuries may result in permanent impairment or a morbid condition which requires a long-term medical care. Permanent loss of capacity to

work will lead to a permanent loss of income support for the workers and their families that could be detrimental to their emotional and psychological wellbeing. Injuries and illnesses are costly to employers as a result of reduced employee productivity, loss of working days, compensation and cost of hiring.

The increasing pressure and cost of work related injuries and illnesses to the workers, employers and societies has increased the demand for comprehensive and intensive rehabilitation programs that are effective in helping injured workers to return to work. Depending on the type and severity of injury and illness, the process of recovery and rehabilitation may require not only medical treatment and physical therapy, but also sessions of counseling and behavioral therapy. It has been shown that even partial impairment severely erodes employment opportunities for workers and that people with disability find it difficult to obtain employment [1].

It is well recognized that structured post-injury intervention programs such as rehabilitation programs, psychosocial interventions, case management and workplace-based return to work strategies can bring positive outcomes to injured workers. While there are many factors influencing the success of any intervention program including injury related factors, individual worker's attitude, family and workplace support, to a large extent these intervention strategies have improved injured workers' general health condition, reduced the duration of work disability and helped injured workers to return to work [2, 3]. It has also been shown that early intervention would lead to early return to work and better overall well-being of workers [4].

Past studies have examined the factors associated with injured workers' abilities to return to work which include demographic, injury-related, prognostic, psychological and psychosocial factors, the role of stakeholders and return to work coordinators [3, 5–11]. For example, Seyedmehdi et al. [5] explored the determining factors that may affect return to work after disc herniation surgery and found that positive expectations about the outcome of surgery, encouragement by the physician, job characteristics and job satisfaction have direct effects on the return to work. Similarly, Li-Tsang et al., Eggert and Gustafsson et al. [3, 7, 11] indicated the importance of psychological factors and self-perceived capacity in ensuring the successful return to work of injured workers. Recognizing the complexity in return to work processes and outcomes, Jetha et al. [12] applied a sociotechnical systems perspective in particular system dynamic modeling to examine the relationships between individual, psychosocial and organizational factors and its influence on return to work. Additionally, Cancelliere et al. [13] performed a synthesis of systematic reviews to identify factors affecting return to work across different health and injury conditions and their associations with return to work outcomes. While the focus of previous studies was on the factors related to return to work, the present study examines the effect of an intervention program using a case management rehabilitation and psychosocial approach on the psychological wellbeing of the injured workers.

## 2. Data and methodology

Data for this study were extracted from the Social Security Organization (SOC SO) database comprising injured workers who participated in the rehabilitation program from 2012 to 2015. Individual record includes information related to the worker's demographic profile,

employment, injury, rehabilitation, outcome of the program as well as the psychosocial measures before and after completion of the rehabilitation program. The psychosocial assessment is based on the Visual Analogue Scale (VAS) and the Depression, Anxiety and Stress Scale (DASS). The DASS is a set of three self-report scales designed to measure emotional states of depression, anxiety and stress among adults [14, 15]. Each component of DASS contains three items giving a total of 42 items. A shorter version of DASS is DASS21 which contains 21 items, seven items in each component. In general the full DASS is often preferable in clinical work while DASS21 is used for research purposes.

The items in DASS21 were selected based on good factor loadings, coverage of all subscales within each scale and item means such that DASS21 scores for each scale should be very close to exactly half the full scale score. Hence DASS21 scores are multiplied by 2 so that they can be compared to the DASS normative data and other published DASS data [15].

The variable of interest is the VAS and DASS21 scores measured before and after rehabilitation of the injured workers. The VAS contains seven components which include worker skills, career goals, independence, self-esteem, self-confidence, health and tolerance for pain measured on a range of 0–10 point scale with value 0 referring to the minimum level experienced and 10 the highest level experienced. For example, for item independence, a score of 9 indicates a higher level of independence than a score of 4 as reported by the participants.

The DASS21 consists of three components namely depression, anxiety and stress each containing seven items measured on a 4-point rating with values ranging from 0 to 3. The value 0 refers to the item 'Did not apply to me at all', 1 refers to 'Applied to me to some degree, or some of the time', 2 'Applied to me to a considerable degree or a good part of time' and value 4 refers to 'Applied to me very much or most of the time'. The DASS21 scores were then multiplied by 2 to obtain the full DASS scores for purposes of analysis. The DASS scores range from 0 to 42 with recommended cut-off scores for conventional severity levels shown in **Table 1**.

The analysis was based on 4041 participants who had information on the VAS and DASS scores both before and after rehabilitation representing 42.6% of the total sample at the commencement of intervention. Paired tests were performed to examine the mean differences in the psychosocial factor assessment before and after rehabilitation program for the total sample as well as for those who were successful and unsuccessful in returning to work.

	Depression	Anxiety	Stress
Normal	0–9	0–7	0–14
Mild	10–13	8–9	15–18
Moderate	14–20	10–14	19–25
Severe	21–27	15–19	26–33
Extremely severe	28+	20+	34+

Source: Lovibond and Lovibond [12].

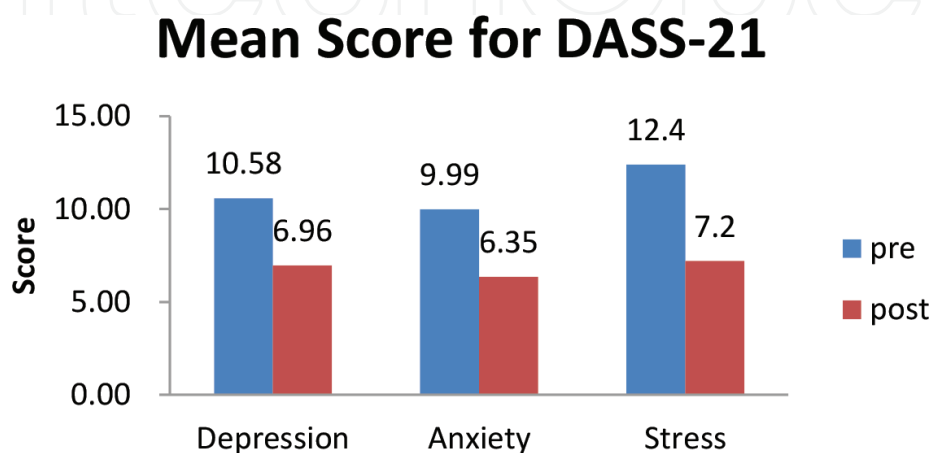
**Table 1.** Cut-off DASS scores for conventional severity levels.

### 3. Social security organization (SOCSO) rehabilitation program

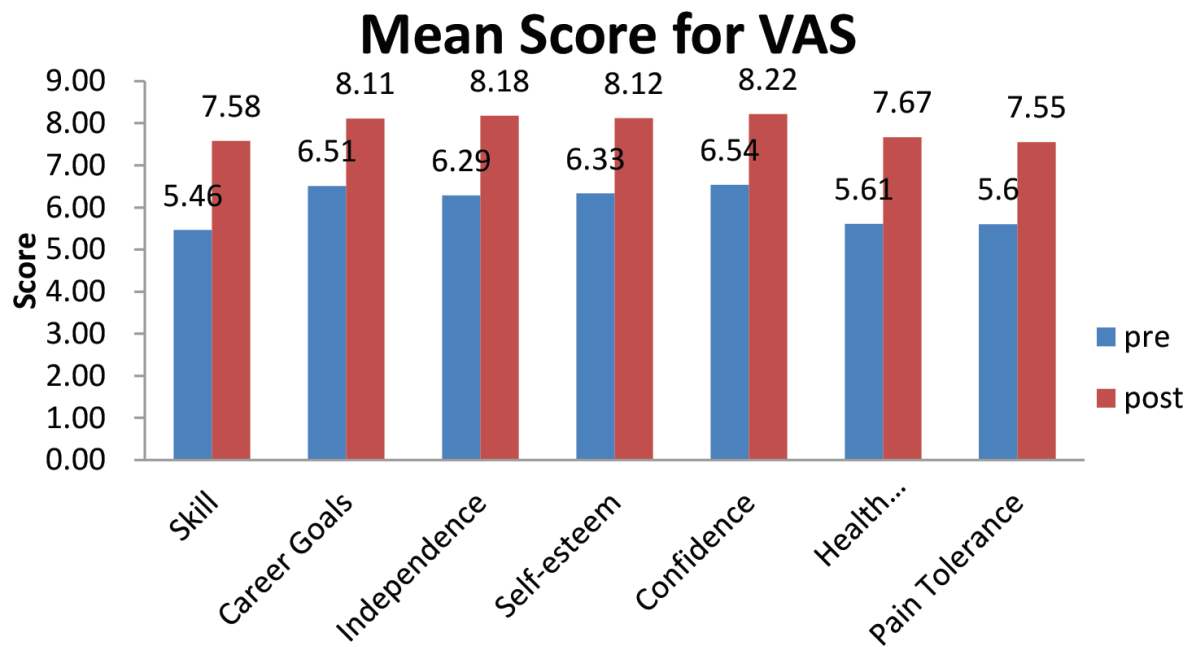
SOCSCO is a statutory body established under the Ministry of Human Resources Malaysia in 1971 in accordance with Employees' Social Security Act 1969. It is mandatory for Malaysian workers earning RM4000 and below to monthly contribute to SOCSO together with their employers. SOCSO administers the Employment Injury Insurance Scheme and the Invalidity Pension Scheme by providing comprehensive social protection in the form of medical, cash benefits and rehabilitation to insured members due to work related accidents or illnesses. However, intensive rehabilitation program was only introduced in 2007 through a biopsychosocial case management approach designed to assist injured workers to return to work in a safe and timely manner. Case management strategy was adopted such that each injured worker is first screened for suitability of rehabilitation and subsequently assigned to one case manager who will facilitate the customized intervention program which integrates all multidisciplinary services. Hence, the rehabilitation for one injured worker involves a case manager, medical and rehabilitation professionals and may take from a couple of weeks to a few months. All these take place at SOCSO Rehabilitation Centre which has a 350 bed facility providing medical rehabilitation services and focuses on areas such as physiotherapy, occupational therapy, optometry, audiology, work hardening, vocational rehabilitation, vocational retraining and job-readiness program. The SOCSO disability management program is designed with one goal in mind and that is to promote the highest degree of independence, recovery and improving well-being in order for an injured worker to be placed back into the job market. Since its introduction to end of 2015, nearly 13,000 injured workers have been rehabilitated and successfully returned to work.

### 4. Results

The mean DASS scores before and after rehabilitation for the three components are shown in **Figure 1** suggesting that injured workers did suffer mild depression and moderate level of anxiety before the commencement of their rehabilitation. However their mean stress score



**Figure 1.** Mean DASS scores before and after rehabilitation.



**Figure 2.** Mean VAS scores before and after rehabilitation.

was within the normal range. The mean scores for depression, anxiety and stress decreased substantially to within its respective normal level range after completion of rehabilitation.

Similarly, substantial improvement is observed with regard to the mean score for the seven components of VAS after completion of rehabilitation. Each of the components which consists of skills, career goal, independence, self-esteem, confidence level, health condition and tolerance of pain showed a mean score between 5.5–6.5 and 7.6–8.2 before and after rehabilitation, respectively (**Figure 2**).

Paired tests were performed on the mean difference between the mean scores before and after rehabilitation for all the 10 components of DASS and VAS assessment (**Table 2**). The mean

Variable	Mean difference	95% Confidence interval	t-Statistic
Skill	2.117	2.048–2.186	60.301**
Career Goal	1.597	1.530–1.665	46.245**
Independence	1.889	1.821–1.956	54.943**
Self-Esteem	1.786	1.720–1.853	52.687**
Confidence	1.687	1.621–1.753	50.053**
Health Condition	2.059	1.991–2.126	59.611**
Pain Tolerance	1.945	1.874–2.015	54.171**
Depression	–3.619	–3.943––3.294	–21.879**
Anxiety	–3.639	–3.950––3.329	–23.005**
Stress	–5.195	–5.519––4.871	–31.459**

\*\* Significant at 1%

**Table 2.** Mean difference of VAS and DASS scores before and after rehabilitation.



Variable	Successful return to work			Unsuccessful return to work		
	Mean difference	n	t	Mean difference	n	t
Skill	2.196	3807	61.045*	0.537	190	4.854*
Career goal	1.670	3821	47.446*	0.112	187	0.825
Independence	1.965	3836	55.668*	0.433	201	3.980*
Self-esteem	1.854	3834	53.266*	0.488	201	4.198*
Confidence	1.753	3839	50.743*	0.436	202	3.493*
Health condition	2.139	3831	60.386*	0.527	201	4.836*
Pain	2.026	3821	55.005*	0.419	203	3.560*
Depression	-3.990	1441	-22.658*	-0.450	169	-1.116
Anxiety	-3.966	1463	-23.621*	-0.778	167	-1.904
Stress	-5.572	1808	-32.153*	-1.160	169	-2.659*

\* Significant at 5%

**Table 3.** Mean difference in DASS and VAS scores for successful and unsuccessful return to work.

difference was statistically significant for all 10 components suggesting that the rehabilitation had improved the injured workers' psychosocial and psychological wellbeing.

Subsequently, separate analyses were performed on the DASS and VAS mean scores among injured workers who participated in the rehabilitation and successfully returned to work and among those who did not return to work. The results shown in **Table 3** indicates significant mean difference is observed in all 10 components of DASS and VAS scores among injured workers who successfully returned to work. Among those who did not return to work, significant difference is observed in all but one VAS scores while for the DASS, only stress showed significant improvement in the workers' stress level after rehabilitation.

## 5. Discussion

Workers who experience work related injuries and illnesses do not only suffer from physical health problems but to some extent also suffer from psychological and mental health problems. This study examined the impact of a case management rehabilitation program through a biopsychosocial approach on the psychological wellbeing of injured workers as measured by the VAS and DASS assessments containing seven and three components, respectively, before and after rehabilitation.

The findings showed statistically significant difference between the mean scores before and after rehabilitation for all the seven components of VAS and three components of DASS. This suggests that the rehabilitation had improved the level of the workers' skills, career goal, independence, self-esteem, confidence, health condition and pain tolerance, as well as reduced the level of depression, anxiety and stress. The improvement in the VAS and DASS scores after rehabilitation is an indication of the improvement in psychological wellbeing and quality of life which in turn improve the workers' motivation and readiness to return to work.

Substantial difference in the improvement in psychological wellbeing was observed between injured workers who successfully returned to work after completion of the rehabilitation program and those who did not return to work. It could very well be that workers with larger improvement in the VAS and DASS assessments were more likely to succeed in returning to work. Majority of SOCSO's insured workers who returned to work actually went back to the same employer and the improvement in their psychological wellbeing could be motivated by their former employers' interest to accept them back while they were undergoing rehabilitation. Work itself is a form of therapy which would further improve the workers' overall wellbeing. For workers who did not return to work, there could be other hindering factors such as the severity of the injury and the nature of their jobs prior to the injury that restricts them from returning to a suitable job after rehabilitation. However, substantial improvement was also observed in their VAS and DASS scores.

## **6. Conclusion**

In conclusion the findings from this study suggest that a structured intervention program such as a case management rehabilitation program had significant qualitative impacts in improving several aspects of the workers' psychological wellbeing and quality of life. This will provide the motivation to not only prepare injured workers to return to work but more importantly to help them to adjust better and ensure sustainability in their post-rehabilitation work life.

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## **Conflict of interest**

The authors have no conflicts of interest to declare.

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